

REMARKS

Claims 1-4, 6-13, and 22-29 stand rejected in the Office Action. Claim 5 is objected to but contains allowable subject matter. Claims 14-21 are withdrawn from consideration as drawn to a non-elected invention. With this reply Applicants have amended claims 1, 10, 22, 28, and 29, and have cancelled claims 14-21 in response to the Restriction Requirement. Applicants expressly reserve the right to pursue the cancelled claims in divisional applications. Upon entry of the amendments, claims 1-13, and 22-29 remain pending.

SUPPORT FOR THE AMENDMENTS

Support for the Amendments is found in the specification as originally filed. For example, support for the Amendments to claims 1 and 10 is found at page 8, paragraph 21 where it states an adsorption method may be used to load transition metals onto carbide and nitride supports. Later in paragraph 21, the specification states that carbide, nitride, or mixed supports such as above are transferred from the synthesis reactor and added to the solution without exposure to air. The specification describes loading transition metals onto the support without exposing the support to air; the resulting structure is claimed in claims 1 and 10 without adding new matter.

Support for the Amendment to claim 22 is also found in paragraph 21. The specification describes transferring a carbide or nitride support from the synthesis reactor and adding it to a solution of transition metal without exposing the support to air. These steps described in the specification are reflected in the claim language that the solid group 6 metal carbide or nitride is an unpassivated material, and that the carbide or nitride is brought into contact with an aqueous solution of the transition metal without exposing the carbide or nitride to air.

Support for the Amendment to claim 28 is found later in paragraph 21, where passivating the material by passing a mixture of oxygen and helium over the material for 4 hours is described as taking place after the material is dried and further heated at an elevated temperature. Support for claim 29 is also found in the specification as originally filed, for example in paragraph 21 ("It is preferred to maintain a flow of inert gas throughout the entire process."). Applicants respectfully request entry of the Amendments.

RESTRICTION REQUIREMENT

In response to the Restriction Requirement, Applicants have cancelled claims 14-21 without prejudice.

REJECTION UNDER 35 U.S.C. § 102

Claims 1-4, 7-13, and 22-29 are rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent 6,297,185 (the Thompson reference). Applicants respectfully traverse the rejection as applied to the amended claims and request reconsideration.

The Amendments to the claims add structure that is not disclosed or suggested in the Thompson Reference. As shown below, the catalyst compositions of the Thompson reference are prepared by loading transition metals on to carbide or nitride ceramic powders that have been prepared by a method including the step of passivating them in 1% oxygen before their use to prepare the transition metal compositions. The amended claims recite that the catalyst compositions contain transition metals loaded onto unpassivated supports, and/or loaded on to carbide and nitride supports without exposing the support to air.

The Thompson reference discloses loading transition metals onto passivated supports.

Attention is respectfully drawn to Example 1:

"A high surface area tungsten carbide ceramic powder was prepared according to the methods disclosed in U.S. Patent No. 5,680,292, and 18 grams of this material was added directly to the chloroplatinic acid solution."

See col. 4, lines 46-49. Further at Example 2:

"About 18 grams of tungsten carbide support material prepared in accord with Example (1) was added to a platinum solution."

Col. 5, lines 14-17. The Thompson reference thus teaches exclusively making catalyst compositions by loading transition metals onto the ceramic materials of U.S. '292. In turn, U.S. '292 teaches that the carbide and nitride supports are made by a process that includes the step of passivating the compounds. Attention is drawn to column 5, lines 30-34:

"After the nitridation program was completed, the materials were cooled to room temperature in flowing NH₃, then passivated in a flowing mixture of 1.06% oxygen in helium for one hour in order to prevent oxidation." (emphasis added)

Thus the Thompson references teaches adding a transition metal to a passivated support.

In contrast, the catalyst compositions of the amended claims are prepared by loading the transition metal onto the support without exposing the support to oxygen, i.e. without passivating the support. This limitation of the amended claims is not disclosed or suggested in the cited references.

Because the amended claims recite limitations not disclosed or suggested in the reference, they are patentable over the cited reference. Accordingly, Applicants respectfully request that the Rejection be withdrawn.

REJECTION UNDER 35 U.S.C. § 103

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,297,185 (the Thompson et al. reference). Applicants respectfully traverse the rejection as applied to the amended claims and request reconsideration.

Applicants have amended the composition and method claims to recite that transition metals are loaded onto carbide and nitride supports without exposing the supports to air. As noted above, the cited reference does not disclose or suggest methods for loading transition metals onto unpassivated carbides and nitrides. Because claim 6 depends from amended claim 1, it contains the limitation that the catalyst composition is made by loading a transition metal onto an unpassivated carbide or nitride support (i.e., without exposing the support to air). As discussed above, the Thompson reference does not disclose or suggest this limitation. Accordingly, Applicants respectfully request the Rejection be withdrawn.

ALLOWABLE SUBJECT MATTER

Applicants acknowledge with appreciation the statement that claim 5 contains allowable subject matter. Applicants respectfully note that claim 5, as it depends from amended claim 1, is patentable over the art of record for the further reasons discussed above.

CONCLUSION

For the reasons discussed above, Applicants believe claims 1-13 and 22-29 are in a state of allowance and respectfully request early notice of such allowance. The Examiner is invited to telephone the undersigned if that would be helpful to resolving any issues.

Respectfully submitted,

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